

Research Update

June 2, 2003

Research Team Announces Work Completed on Two Research Projects Sponsored by the Steel Framing Alliance

Work was completed on the Testing of Steel Single L-Headers project by the NAHB Research Center. The objective of this test program was to test single L-headers for short window and door openings (4'-0") for residential construction. Testing is completed and a final report, "Testing of Steel Single L-Headers", dated February 2003, was issued. A series of 18 full-scale tests were carried out to evaluate the capacity of 6 different single L-header sizes. The derived test data provides a basis for expanding the current design options and should allow for more efficient design in cold-formed steel. Currently, only double L-headers are addressed in AISI standards, however, the results of this project will enable changes to the AISI Header Design and Prescriptive Method standards to include single L-headers.

Work was also completed on the Reducing the Cost of Combining ICF's and Steel Framing in Residential Construction project by Building Works, Inc., of Cambridge, Massachusetts. The objectives of this test program were to develop guidelines for combining insulating concrete form (ICF) walls and cold-formed steel framing in residential construction, and to identify and test combinations of the two systems that reduce design and construction costs, and improve building quality. Work is completed and a final report, "Prescriptive Method for Connecting Cold-Formed Steel Framing to insulating Concrete Form Walls in Residential Construction", dated February 2003 has been issued. Steel framed floors, interior walls and roofs would seem to be a perfect companion for ICF walls. This report should serve as a useful guide for builders and designers interested in combining insulating concrete form (ICF) walls and cold-formed steel framing in residential construction.

The Steel Framing Alliance and the American Iron and Steel Institute also authorized work on two new research projects.

The first project on Deflection and Ductility Performance Limits for Cold-Formed Steel Frame Shear Walls will be performed at the University of Santa Clara. The objective of this effort will be the analysis of existing shear wall data to obtain elastic stiffness parameters and to establish piece-linear performance curves (bilinear or trilinear) or general equations for predicting deflections. The results of this work will be incorporated in a new standard on Lateral Design being developed by the AISI Committee on Framing Standards.

The second project on Alignment of Steel Framing Bearing Stiffeners will be performed at the University of Waterloo. The objective of this effort will be to gain a more thorough understanding of floor joist behavior when there is misalignment in the load path for the range of products and limitations of the AISI Prescriptive Method and to propose modifications to the AISI General Provisions and Prescriptive Methods standards, as necessary.

The Steel Framing Alliance's core value of "maintaining leadership in construction technology through innovation" is the primary driver behind these research initiatives. The ideas and involvement of builders, contractors, designers and suppliers in this process is essential to its success.

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